

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of manufacturing a semiconductor device comprising:

a first step of laminating an adhesive tape to a back surface of a semiconductor wafer on which ~~forms an integrated circuit~~ is formed over a main surface thereof, and, thereafter, dividing the semiconductor wafer into a plurality of semiconductor chips by dicing; and

a second step of selectively applying vibrations to a semiconductor chip ~~to be peeled~~ among the plurality of semiconductor chips which are laminated to the adhesive tape and to the adhesive tape arranged below the semiconductor chip to be peeled so as to peel the semiconductor ~~chips~~ chip from the adhesive tape,

wherein a frequency of the vibrations is set to a value within a range of 1kHz to 100kHz and ~~an the~~ amplitude of the ~~vibration~~ vibrations is set to a value within a range of 1 μm to 50 μm .

2. (previously presented) The method of manufacturing a semiconductor device according to claim 1, wherein the vibrations are longitudinal vibrations in a direction perpendicular to a surface of the adhesive tape.

3. (currently amended) The method of manufacturing a semiconductor device according to claim 2, wherein, when the vibrations are applied to the adhesive tape,

a tension in a horizontal direction with respect to a surface of the adhesive tape is applied to the adhesive tape.

4. (currently amended) The method of manufacturing a semiconductor device according to claim 1, wherein ~~a~~the thickness of the semiconductor chip is equal to or less than 100 μ m.

5. (currently amended) A ~~manufacturing method of~~ manufacture of a semiconductor device comprising the steps of:

(a) preparing a semiconductor wafer having an integrated circuit formed over a main surface thereof; ~~as well as~~

(b) laminating an adhesive tape to a back surface of the semiconductor wafer, said tape having a diameter larger than ~~a~~the diameter of the semiconductor wafer and having a surface over which an adhesive agent is applied;

~~— (b) laminating the adhesive tape to a back surface of the semiconductor wafer and,~~

(c) thereafter, dividing the semiconductor wafer into a plurality of semiconductor chips by dicing; and

~~(e)(d) peeling the semiconductor chips from the adhesive tape in such a manner that by bringing a vibrator is brought into contact with a back surface of the adhesive tape, while applying a tension in a horizontal direction to a surface of the adhesive tape to which the plurality of semiconductor chips are laminated, and applying longitudinal vibrations having a frequency ~~which in~~ a range of 1 kHz to 100 kHz and an amplitude within a range of 1 μ m to 50 μ m ~~are applied~~ to semiconductor~~

chips to be peeled off out of the plurality of semiconductor chips and to the adhesive tape disposed below the semiconductor chips by way of the vibrator.

6. (currently amended) The ~~manufacturing-method~~ of manufacture of a semiconductor device according to claim 5, wherein the vibrator is operated prior to ~~the step of bringing~~ the vibrator into contact with the back surface of the adhesive tape.

7. (currently amended) The ~~manufacturing-method~~ of manufacture of a semiconductor device according to claim 5, wherein when the longitudinal vibrations are applied to the semiconductor chip and the adhesive tape below the semiconductor chip, a collet is brought into contact with ~~a~~the main surface of the semiconductor chip to be peeled.

8. (currently amended) The ~~manufacturing-method~~ of manufacture of a semiconductor device according to claim ~~5~~7, wherein after applying ~~the~~ longitudinal vibrations to the semiconductor chip and the adhesive tape below the semiconductor chip, the semiconductor chip is held and is pulled upwardly by the collet and operation of the vibrator is stopped simultaneously.

9. (currently amended) The ~~manufacturing-method~~ of manufacture of a semiconductor device according to claim 5, wherein ~~an~~ the area of ~~a~~ the portion of the vibrator which is brought into contact with the back surface of the adhesive tape is ~~set~~ smaller than ~~an~~ the area of the semiconductor chip.

10. (currently amended) The ~~manufacturing method of~~ manufacture of a semiconductor device according to claim 5, wherein the adhesive agent applied to the adhesive tape is an ultraviolet-ray curing type adhesive agent, and ~~the manufacturing method further includes~~ including a step of irradiating the adhesive tape with ultraviolet rays so as to decrease ~~an~~ the adhesive strength of the adhesive tape after dividing the semiconductor wafer into ~~the~~ a plurality of semiconductor chips by dicing and prior to ~~the step of~~ bringing the vibrator into contact with the back surface of the adhesive tape.

11. (currently amended) The ~~manufacturing method of~~ manufacture of a semiconductor device according to claim 5, ~~wherein the manufacturing method further includes~~ including a step of mounting the semiconductor chip over a chip mounting board after the step ~~(e)~~ (d).

12. (currently amended) The ~~manufacturing method of~~ manufacture of a semiconductor device according to claim 5, wherein ~~a~~ the thickness of the semiconductor chip is set equal to or less than 100 μ m.

13. (currently amended) The ~~manufacturing method of~~ manufacture of a semiconductor device according to claim 5, wherein after applying ~~the~~ longitudinal vibrations to the semiconductor chip and the adhesive tape below the semiconductor chip, the operation of the vibrator is stopped upon detection of a change of impedance of the vibrator.

Amendments to the Abstract:

ABSTRACT OF THE DISCLOSURE

~~The present invention provides a manufacturing~~ A method of manufacture of a semiconductor device ~~which can speedily peel extremely thin chips which are laminated to an adhesive tape without generating cracks or chippings. Ain this regard, the~~ head of a vibrator is brought into contact with a back surface of an adhesive tape to which a plurality of semiconductor chips ~~obtained by dividing a semiconductor wafer~~ are laminated. By applying longitudinal vibrations having a frequency of 1kHz to 100kHz and an amplitude of 1 μ m to 50 μ m, the chip is peeled from the adhesive tape. In applying the longitudinal vibrations to the adhesive tape, a tension in a horizontal direction is applied to the adhesive tape.